ABSTRACT

A Residual Time Stamp (RTS) technique provides a method and apparatus for recovering the timing signal of a constant bit rate input service signal at the destination node of a synchronous ATM telecommunication network. At the source node, a free-running P-bit counter counts cycles in a common network clock. At the end of every RTS period formed by N service clock cycles, the current count of the P-bit counter, defined as the RTS, is transmitted in the ATM adaptation layer. Since the absolute number of network clock cycles likely to fall within an RTS period will fall within a range determined by N, the frequencies of the network and service clocks, and the tolerance of the service clock, P is chosen so that the 2^P possible counts, rather than representing the absolute number of network clock cycles and RTS period, provide sufficient information for unambiguously representing the number of network clock cycles within that predetermined range. At the destination code, a pulse signal is derived in which the periods are determined by the number of network clock cycles represented by the received RTSs. This pulse signal is then multiplied in frequency by N to recover the source node service clock.